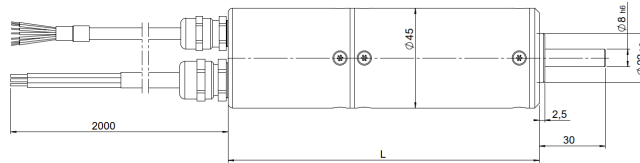
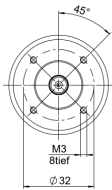


HSM38

Brushless DC motors

Up to 55W output power can be combined with various gears and holding brakes
Hall sensors as feedback system



Type	Dimension L
HSM3815	127
HSM3830	142
HSM3845	157

Power cable

Description	Wire colour
motor phase A	black with number print 1
motor phase B	black with number print 2
motor phase C	black with number print 3

Signal cable

Description	Wire colour
Hall sensor 1	green
Hall sensor 2	yellow
Hall sensor 3	orange
Hall sensor supply	red
Hall sensor ground	black
temperature sensor PT1000 + (max. 24 V _{DC})	violet
temperature sensor PT1000 - (GND)	blue
voltage drop over PT1000 (connection to analog input)	brown

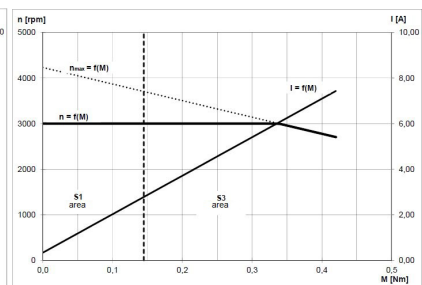
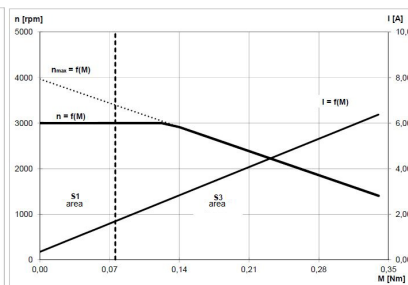
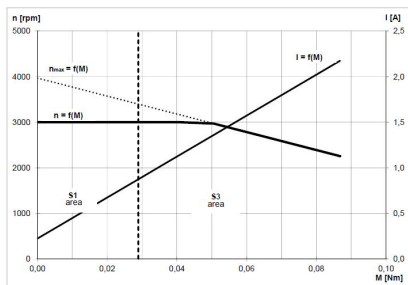
Operation characteristics:

Measured at 24V_{DC} with block-shaped current supply

HSM3815-24, 24V, 3000rpm

HSM3830-24, 24V, 3000rpm

HSM3845-24, 24V, 3000rpm



Description:

The motors of the HSM series are brushless permanent magnet DC motors. These motor systems commutate on the basis of suitable drive controllers (hence the term EC motor). The stator is a 3-phase toothed coil winding, the rotor consists of 12 high-quality neodymium-iron-bore magnets. The specially developed Hall sensor board serves as a very cost-efficient and reliable feedback system. The HSM drives can be expanded modularly with different gearboxes, holding brakes and encoder systems.

Characteristics:

- high power density
- cost efficiency
- high efficiency
- low inertia rotor
- good controllability
- compact design
- can be combined with planetary gearboxes, worm gearboxes and planetary angle gearboxes
- IP protection classes above 54 available as an option
- optional connectors available
- winding optimization also for other speeds
- connecting cable available in different lengths and with or without shield
- connecting cable assembled to the suitable EDC drive controllers

Type		HSM3815-24	HSM3830-24	HSM3830	HSM3845-24	HSM3845
series						
nominal speed	rpm	3000	3000	4000	3000	4000
nominal voltage	V	24	24	24	24	24
nominal current ⁽²⁾⁽⁵⁾	A _{rms}	0,7	1,6	1,9	2,8	3
nominal power ⁽¹⁾	W	10	23	30	44	55
operation acc. to VDE0530		S1	S1	S1	S1	S1
protection acc. to VDE0530		IP54	IP54	IP54	IP54	IP54
connection		sheathed cable	sheathed cable	sheathed cable	sheathed cable	sheathed cable
rotating direction		reversible	reversible	reversible	reversible	reversible
desing		IM B14	IM B14	IM B14	IM B14	IM B14
Mechanical data:						
mass moment of inertia	kgm ²	0,00292*10 ⁻³	0,00522*10 ⁻³	0,00522*10 ⁻³	0,00752*10 ⁻³	0,00752*10 ⁻³
nominal torque ⁽¹⁾	Nm	0,029	0,07	0,068	0,14	0,128
peak torque	Nm	0,09	0,3	0,203	0,42	0,383
speed constant	V ⁻¹ *rpm	165,3	165,3	208,8	176,32	220,4
characteristic slope Δn/ΔM	rpm/Nm	19721	7534	8769	3766	6656
mechanical time constant	ms	3,86	1,787	2,196	1,332	-
friction torque	Nm	0,01	0,02	0,015	0,02	0,01
rotor weight	kg	0,1	0,14	0,14	0,18	0,18
motor weight	kg	0,78	0,9	0,9	1,02	1,02
motor weight incl. parking brake	kg					
F _R (permissible radial shaft load) ⁽³⁾	N	110	110	110	110	110
F _A (permissible axial shaft load)	N	44	44	44	44	44
Electrical data:						
phase number		3	3	3	3	3
pole number		12	12	12	12	12
terminal resistance ⁽⁴⁾	Ω	1,89	0,7	0,553	0,38	0,48
inductance ⁽⁴⁾	mH	0,81	0,267	0,168	0,242	0,097
voltage constant	V/1000*rpm	6,05	6,05	4,789	5,67	4,537
torque constant	Nm/A	0,0445	0,057	0,045	0,058	0,049
max. peak current ⁽²⁾⁽⁵⁾	A _{rms}	2,1	4,8	5,7	8,4	8,422
electric time constant	ms	0,43	0,31	0,304	0,56	0,202
Thermal data:						
max. ambient temperature	°C	20	20	20	20	20
insulation class acc. to VDE0530		F	F	F	F	F
thermal time constant	min	follows	follows	follows	follows	follows
temperature-rise without cooling	K/W	15	6,4	6,7	4,53	5,8
Connection:						
cable gland	M16x1,5	Power cable 2m. Available in different lengths, can be assembled with EDC drive controller crimp contacts and plugs on request.				
cable gland	M12x1,5	Sensor cable 2m. Available in different lengths, can be assembled with EDC drive controller crimp contacts and plugs on request.				
Parking brake:						
nominal voltage	V					
nominal current	A					
static break torque (motor shaft)	Nm					
max. number of operations per hour						

Tolerances acc. to VDE 0530 ± 10%.

¹⁾ Values apply when mounting on aluminum contact surfaces (A=0,15m2, d=10mm).

²⁾ RMS value of the current.

³⁾ Centre of the shaft.

⁴⁾ Measured between two phases.

⁵⁾ The current that actually flows in the motor system, not to be confused with the current that is displayed on the power supply unit.

The values are valid for use in the temperature range 0-20°C and must not be exceeded, even briefly, to avoid the risk of magnet weakening.